

NWS Lincoln held an “Ask a Meteorologist” Question & Answer session on our Twitter and Facebook social media channels on Thursday, October 30. For those of you unable to attend, here’s what we discussed.

Question: My 4th grader would like to know, what are the educational requirements to work as an NWS meteorologist?

Answer: High school students need to take 4 years of math, and 4 years of science (including physics). In college, at least 4 semesters of advanced math (calculus and differential equations) are needed, as well as physics and chemistry. More information is available at the following link:

<http://www.srh.noaa.gov/oun/?n=faq-employment>

Question: Are the custom forecasts on www.weather.gov tweaked by humans, or entirely algorithmic?

Answer: When we create our forecasts, they are in a “gridded” format. Basically, it is a graphical format where the grid sizes are squares 2.5 km on a side. This involves a combination of ingesting model data, algorithmic calculations (e.g. coming up with the relative humidity when the temperature and dew point are known), and manual edits. These gridded forecasts are sent up to our national facilities in the Washington DC area for distribution. The www.weather.gov display is run from these facilities, and extracts the necessary data from our gridded forecasts for its displays.

Question: How old must you be to be trained as a spotter?

Answer: Storm spotters must be at least 18 years old to submit the reports through their local emergency management agency. However, people younger than 18 can attend the actual training sessions, to get an idea of what is involved. Storm spotter networks are organized by the individual county emergency management agencies, so it is best to contact them to see if they have a specific requirement.

Question: Is it true that Indian Summer is sometimes after a hard freeze?

Answer: “Indian Summer” typically follows at least 1 killing frost, and preferably after a period of substantially chilly weather. It usually is characterized by sunny, warm days, and clear cool nights, with some smoke or haze in the air. The NWS office in Detroit has an extensive write-up about the definition of Indian Summer at the following web page:

<http://www.crh.noaa.gov/dtx/stories/i-summer.php>

Question: Do you use any private weather stations for forecasts or records?

Answer: We have access to several types of private weather stations, which are ingested into our computer system. These include the Weather Bug station network typically at schools, data sent in by amateur radio networks, and those operated by the Illinois Department of Transportation. These help us with our

gridded forecasts, as they can help detect localized cooler or warmer conditions. Official climate records are based on observing sites that are under our direct control, with specific types of equipment.

Question: Are your computer models for forecast discussions run in Lincoln, or on bigger computers elsewhere?

Answer: Most of our models are run at the NWS's Environmental Modeling Center in College Park, MD. A few NWS offices do run models locally; we have access to the one from the St. Louis office in our main computer system, and can see ones from other offices over the Internet. We also are able to see models from some of our counterparts in Europe and Canada. Over the Internet, we will also use models that are specifically run for the Storm Prediction Center, or run via universities.

Question: Is the snowfall for this winter going to be above average?

Answer: The NWS does not put out seasonal outlooks for snowfall, as a single snowstorm can skew things from one direction to the other. For example, a couple winters ago, Springfield was running below normal snowfall-wise, until late March, at which point they received 18" in a single storm and the season ended up above normal. Our outlook for precipitation in general is currently calling for below normal precipitation for this winter.

Question: Have you ever done a study to determine why the frequency of tornados is higher in Central Illinois as compared to the rest of the state - Tazewell, McLean, Sangamon, Logan, Macon, and Champaign counties are among the highest in the state. Is there a reason or is it just chance? And why does it seem like South Pekin to Morton to Washington has seemed to be Tazewell's own tornado alley over the past 10-15 years?

Answer: We have not done a specific study. Part of it may be due to the increased numbers of spotters in general for those particular counties, versus other counties. To mitigate some of that disparity, we have calculated some rankings based on tornadoes per 100 square miles, which results in Logan County having the highest rank (9.547 tornadoes per 100 square miles) vs McLean County which had 103 tornadoes overall since 1950. As to the mini "tornado alley" in Tazewell County, there is no specific phenomenon that is "steering" tornadoes to the east side of the Illinois River vs the west side. However, Tazewell County has had 19 tornadoes since 2000, with at least 11 in that general corridor.

Question: My question may seem more off base than most here but I've always been fascinated with the date December 15th, 1987, here in Peoria, and well most of Illinois experienced this rare weather event that took place in the very late night, early morning hours.

I've read this fascinating research done on the rapid barometric pressure drop of this day!

My question to the NWS is how rare are these events on land when low pressure systems become tightly wound such as this one and if my memory serves me correctly this low pressure event had some pressure drops of .10 to .20 inches of mercury an hour for multiple hours at a time. Not sure if that was a record of any type here in Central IL?

I was in 8th grade on this day. I remember seeing my android barometer around 30.00 early in the evening and woke up to lightning and thunder at 3am with snow falling and winds howling and my barometer was around 29.00 inches of mercury. Back then they didn't have digital barometers for the general public??? You had to tap it to catch it up to the rapid pressure drops and increases as the intense low passed by us.

Any thoughts about this day, more concerning the phenomenon of this on-land rapid pressure decrease from this deep low pressure system that is more typical of a hurricane or tropical depression off land?

Answer: I haven't reviewed that particular paper, so it's hard to come up with an answer at this point. I do see that Peoria tied their December record low barometric pressure that day at 28.99 inches (record originally was set 12/15/1971). A few years ago, in October 2010, there was an extremely intense storm system that produced Minnesota's all-time record low pressure (28.43"), and even this far away, Peoria's pressure of 28.98" set an October record.